CIRCUIT DESCRIPTION

CD-3H131-01
ISSUE 2A
DWG ISSUE 2A
DISTN CODE 7T11

2

ELECTRONIC SWITCH SYSTEMS

NO. 3

THIRD STAGE ACCESS CIRCUIT

SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

1.01 The purpose of the third stage access circuit is to provide the means of selecting one of eight input levels (circuit junctors) and one of eight output levels (wire junctors) for all third-stage switches in the lower or upper half of each of four third-stage switch groups from peripheral control units 0 or 1.

2. GENERAL DESCRIPTION OF OPERATION

2.01 An input level for the lower half of one third-stage switch group is selected by applying positive voltage to one of the gate leads 0/1 NS3L (00 through 07) and grounding one of the nodes NNI3 (0 through 3) for the desired switch group. An input level for the upper half of one third-stage switch group is selected, like the lower half, by applying positive voltage to one of the gate leads 0/1 NS3L (08 through 15) and grounding the node.

2.02 An output level for the lower half of one third-stage switch group is selected by applying positive voltage to one of the gate leads 0/1 NS3WL (00 through 07) and grounding one of nodes NN3 (0 through 3) for the desired switch group. An output level for the upper half of one switch group is selected, like the lower half, by applying positive voltage to one of the gate leads 0/1 NS3WL (08 through 15) and grounding the node.

2.03 One level select circuit pack (FC190) is provided for the lower TSLSL (0 through 3) half and one for the upper TSLSH (0 through 3) half of each third-stage switch group.

SECTION II - DETAILED DESCRIPTION

1. INPUT-LEVEL (CIRCUIT JUNCTOR) SELECTION

1.01 An input level is selected by operating one PNPN device on one of the circuit packs TSLS (L,H) (0 through 3). A PNPN device is operated by applying positive voltage to the gate lead and grounding a resistor associated with the cathode. This causes gate current to flow and hence the device is turned on and can carry current in the anode circuit.

2. OUTPUT-LEVEL (WIRE JUNCTOR) SELECTION

2.01 An output level is selected by operating one PNPN device on the same circuit pack on which the input-level PNPN was operated in 1.01. The device is operated in exactly the same way as described for the input level. Thus, for any particular third-stage operation two PNPNs are operated on one of the circuit packs of this circuit.

3. OPERATION DURING PULSING

3.01 Once input and output levels have been selected, as previously described, the network control circuit part of the peripheral control circuit checks these selections by monitoring the gate currents flowing into the devices selected. If these currents are normal, a signal is sent to the remreed pulser circuit to pulse the selected path.

3.02 Current from the pulser flows through the peripheral control circuit and into lead NPPO-3 of this circuit. Current flows into the selected output level PNPN anode and out one of the leads POL (L,H) (0 through 3) (0 through 7), PRLL-3 to the 15C remreed grid circuit. Current flows through the 15C grid circuit and into one of the input level leads PI L(L,H) (0 through 3) (0 through 7) of this circuit. Current flows through the selected input level PNPN and out lead NPN (A,B) (0 through 3) through the peripheral control circuit back to the pulser.

3.03 Once the current over the selected path reaches a level of 1.0 A the gate voltages to the selected PNPNs of this circuit as well as all others in the path are turned off. The grounds supplied to the nodes are also removed.

3.04 The selected PNPNs, however, remain on due to the holding characteristic. The current from the pulser continues building up in sine-wave fashion until a level of about 4.2 A is reached. After the current from the pulser goes to approximately 0.0 A, the selected PNPNs will turn off. The remreed contacts associated with the selected input and output levels will have been operated and latched due to the magnetic-holding property, and a path through the third stage will have been established.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

1.01 This circuit is designed to operate in room ambients between 35°F and 120°F.

2. FUNCTIONAL DESIGNATIONS

2.01 Circuit Packs

Designation	Meaning
TSLSH(0-3)	Third-Stage Level Select High Half
TSLSL(0-3)	Third-Stage Level Select Low Half

3. FUNCTIONS

3.01 Provides the means of selecting an input and output level for the lower or upper half of each of four third-stage switch groups from controllers 0 or 1.

4. CONNECTING CIRCUITS

4.01 When this circuit is listed on a keysheet, the connecting information thereon is to be followed.

(a) Peripheral Control Circuit - SD-3H110-01.

(b) 15C Remreed Grid Circuit - SD-3H130-01.

(c) Control Frame Circuit - SD-3H902-01.

5. MANUFACTURING TESTING REQUIREMENTS

5.01 This circuit should be tested to verify that it is wired in accordance with the schematic and wiring drawings, that the requirements of the circuit requirements table are met, and that the circuit is capable of performing all functions stated in this circuit description.

SECTION IV - REASONS FOR REISSUE

D. Description of Changes

D.1 Provided complete CD information.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 5341-LDW-LFG